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1. *A new Giant Sea-star, Mithrodia gigas n. sp., from South Africa.*—  
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(With Plate I and 1 Text-figure.)

SOME months ago I received from Dr. K. H. Barnard, South African Museum, Cape Town, photographs of a very large sea-star which he had received from Mr. Bell Marley, Durban, who suggested that it might be a *Mithrodia*. The photographs left no doubt of its being really a *Mithrodia*, and a new species, markedly different from the three species of that genus known till now. Dr. Barnard then sent me the specimen, asking me to describe it. On account of its being by far the largest of any specimen of *Mithrodia* hitherto recorded, and, indeed, one of the largest sea-stars known, I name it

*Mithrodia gigas* n. sp.

Rays five, of somewhat unequal length. The longest ray is 330 mm., another ray is 310 mm., and the three others 300 mm. long. The total diameter thus is some 600 mm. Diameter of disk c. 90 mm.

The rays of the dried specimen are c. 50–60 mm. broad, but clearly they are not so broad in life. The specimen evidently has been dried directly from the sea, not first fixed in alcohol or formalin, and therefore the dorsal wall of the rays has sunk in and the rays become flattened. Presumably, the rays will be cylindrical in life as in the other *Mithrodia* species, and their diameter not more than c. 30–40 mm. They are scarcely constricted at the base. The interbrachial angles appear to be somewhat rounded.

The disk is rather closely set with low, almost spherical knobs, the largest of which slightly exceed 2 mm. in diameter; on their

upper surface they are densely set with low, rounded prominences, producing a somewhat scaly appearance.

These knobs continue a little more sparsely on the dorsal side of the rays in their basal half, becoming then much more scarce in the distal part, disappearing almost completely, until at the tip of the rays they are replaced by large, spherical knobs of up to 5 mm. diameter (fig. 1). These large knobs are likewise covered with small, scaly prominences. There are no large spines on the dorsal side of disk and rays.

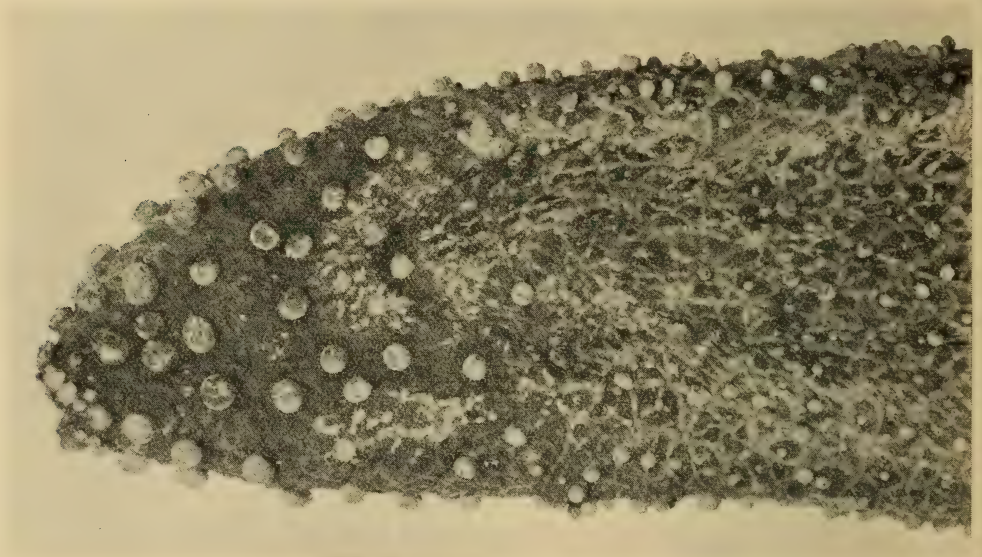


FIG. 1.—*Mithrodia gigas*, n. sp. Tip of ray, natural size.

The dorsal skeleton consists of low ridges arranged so as to form more or less distinct stars, in the centre of which the knobs are placed. The whole dorsal side has evidently been covered by a thick skin, in which are imbedded numerous small spinelets, the ridges of the skeleton thus having a very finely granular, almost velvety appearance. Also the larger knobs have been covered with such a rather thick skin.

On the sides of the rays the knobs increase in number, but no larger spines are found here either, and only close to the ambulacral furrow the knobs gradually grow a little larger, passing very evenly into the outer adambulacral spines.

The ambulacral, or furrow spines are only four in number; the

two median ones are somewhat stouter and longer (4-5 mm.) than the two lateral ones, the latter being, however, not rudimentary. The inner adambulacral spines are 5-6 mm. long, stout, club-shaped, and of the usual scaly-granular appearance, the side turning towards the ambulacral furrow being partly more smooth. They form a perfectly regular series, one to each adambulacral plate. The outer series of adambulacral spines is, on the whole, very inconspicuous, these spines passing very gradually into the general covering of the oral side of the rays. No ventro-lateral series of spines or larger knobs observable. At the tip of the rays the knobs grow larger, globular, but not so large as those of the dorsal side. The inner adambulacral spines do not thus transform.

As on the dorsal side a thick skin covers the body skeleton and the knobs and spines also on the ventral side. Even the ambulacral spines are covered by this thick skin, so that—on the present, dried specimen—the number of these spines can only be ascertained on cleaning away the skin (by means of hypochlorite of sodium). A very extraordinary fact is that in this skin covering the ambulacral spines are imbedded a number of small, sharp granules or spinelets, so that even the ambulacral spines get a scaly appearance like the larger spines and knobs.

The oral edges, or jaws, are rounded; there is no special oral armature, only the usual ambulacral and adambulacral spines, which are not larger here than along the ambulacral furrow.

The madreporite is small, partly covered by the knobs. It is a little nearer the edge than the centre of the disk.

The colour of the live specimen was, according to Mr. Bell Marley, purplish pink, the tip of the rays more cinnamon red; below pale yellowish; the ambulacral feet white. The dried specimen has lost the colour completely.

The specimen was caught on a fish hook, having taken to the bait, fouling itself in the line. It was taken off Point Morgan, East London, on fishing grounds in 25-30 fathoms, on stony ground.

This is another highly interesting addition to the rich endemic fauna of the seas along the South African East Coast. Mr. Bell Marley is to be sincerely congratulated on having secured this, and so many other treasures of that fauna. But it is not enough to leave it to the casual catches on fish hooks or by trawlers (a good deal of interesting forms have been saved by Captain Pace). A real scientific investigation of this sea is greatly needed. It will be sure to yield most important results. The little we know already shows

this area to be one of the richest and most characteristic zoogeographical regions of the world.

The present species differs strikingly from the three other species of the genus *Mithrodia* hitherto known, *M. clavigera* (Lamarck) of the Indo-Pacific, *M. bradleyi* Verrill of the American West Coast and Hawaii, and *M. fisheri* Holly of Hawaii. It would seem the nearest related to *M. bradleyi*, which also lacks the large spines on the dorsal surface (in the adult); but it differs from all of them in the total absence of long spines, in having only four ambulacral spines (in the other species c. 6-12) and these even covered with granular spinelets imbedded and lying loosely in the thick skin enclosing the ambulacral spines. Finally, the large spherical knobs on the point of the rays is a quite unique feature.